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09/965,615	09/27/2001	Masakazu Hirano	09412.65876	7774

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EXAMINER
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NEGRON, DANIEL L

ART UNIT	PAPER NUMBER
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2651

DATE MAILED: 12/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/965,615

Applicant(s)

HIRANO ET AL.

Examiner

Daniell L. Negrón

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on August 11, 2003 was filed after the mailing date of the application on September 27, 2001. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Claim Objections***

3. Claims 3 and 13 are objected to because of the following informalities: Claims 3 and 13 recite the word "compete", Examiner suggests that it be corrected to read "complete".  
Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

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The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-3, 9-13, 20, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Uchiike et al U.S. Patent No. 6,236,527.

Regarding claim 11, Uchiike et al disclose a storage apparatus comprising a load/unload mechanism, which carries out a ramp load/unload operation to load/unload a head (4) which is provided on an arm (3) with respect to a recording medium (1) by a driving part e.g. voice coil motor (5), which drives the arm (See Fig. 4 and column 3, lines 41-63).

Uchiike et al also disclose a controller e.g. CPU (10) controlling a driving current which is supplied to the driving so as to undergo a gradual change during at least one of a load operation and an unload operation (see Fig. 4).

Regarding claim 12, Uchiike et al disclose a storage apparatus wherein the controller (10) controls the driving current to undergo the gradual change during the load operation for at least one of a release operation, which releases the arm (3), a head feed operation, and a speed control operation (column 4, lines 25-28 and column 4, lines 42-54).

Regarding claim 13, Uchiike et al disclose a storage apparatus wherein the controller (10) controls the driving current to undergo a gradual change when completing the unload operation (column 5, line 66 through column 6, line 26).

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Regarding claims 20 and 21, Uchiike et al disclose a storage apparatus wherein the controller (10) controls the driving current to undergo a sharp change during the load operation for at least one of a release operation, which releases the arm (3), a head feed operation, and a speed control operation (see Fig. 4A, element P1, column 4, lines 25-28 and column 4, lines 42-54).

Regarding claims 1-3, 9, and 10, method claims 1-3, 9, and 10 are drawn to the method of using the corresponding apparatus claimed in claims 11-13, 20, and 21. Therefore method claims 1-3, 9, and 10 correspond to apparatus claims 11-13, 20, and 21 and are rejected for the same reasons of anticipation as described above.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchiike et al U.S. Patent No. 6,236,527 in view of Ito U.S. Patent No. 5,315,455.

Regarding claim 14, Uchiike et al disclose a storage apparatus with all the limitations of claim 11 as described above. Uchiike et al however fail to mention a storage apparatus wherein the controller changes the driving current in steps, which do not exceed a predetermined amount of change.

However, Ito discloses a storage apparatus wherein an actuator arm e.g. carriage is moved by applying a current and gradually increasing its value in predetermined steps for the

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purpose of preventing sharp movement of the head across the disk (column 3, line 67 through column 4, line 34).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the apparatus disclosed by Uchiike et al and apply the teachings of Ito in order to obtain a storage apparatus in which control of the actuator arm is improved by slowly or gradually increasing the current applied to the voice coil motor and avoiding sharp movement.

Regarding claim 4, method claim 4 is drawn to the method of using the corresponding apparatus claimed in claim 14. Therefore method claim 4 corresponds to apparatus claim 14 and is rejected for the same reasons of obviousness as described above.

7. Claims 5, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchiike et al U.S. Patent No. 6,236,527 in view of Huang et al U.S. Patent No. 6,583,964.

Regarding claims 15 and 17, Uchiike et al disclose a storage apparatus with all the limitations of claim 11 as described above. Uchiike et al however fail to mention a storage apparatus wherein the controller gradually changes the driving current by use of a low pass filter.

However, Huang et al disclose an apparatus for controlling the movement of an actuator arm wherein a low pass filter is used for the purpose of eliminating high frequency signals generated from resonance. Huang further mentions that a low pass filter would be used for the purpose of eliminating vibration of the actuator arm (column 2, lines 29-37 and column 10, lines 11-35).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the apparatus disclosed by Uchiike et al with the teachings of

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Huang et al in order to obtain a storage device wherein high frequency noise and resonance is filtered from the voice coil motor control current and further reduce actuator vibration.

Regarding claim 5, method claim 5 is drawn to the method of using the corresponding apparatus claimed in claim 15. Therefore method claim 5 corresponds to apparatus claim 15 and is rejected for the same reasons of obviousness as described above.

8. Claims 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchiike et al U.S. Patent No. 6,236,527 in view of Ito U.S. Patent No. 5,315,455 as applied to claim 14 above, and further in view of Huang U.S. Patent No. 6,583,964.

Regarding claim 16, Uchiike et al disclose a storage apparatus with all the limitations of claim 11 as described above. Furthermore, Uchiike as modified by Ito teaches a storage apparatus wherein an actuator arm e.g. carriage is moved by applying a current and gradually increasing its value in predetermined steps for the purpose of preventing sharp movement of the head across the disk as discussed in above rejection of claim 14. However, the modification of Uchiike by Ito fails to mention a storage apparatus wherein the controller gradually changes the driving current by use of a low pass filter.

However, Huang et al disclose an apparatus for controlling the movement of an actuator arm wherein a low pass filter is used for the purpose of eliminating high frequency signals generated from resonance. Huang further mentions that a low pass filter would be used for the purpose of eliminating vibration of the actuator arm (column 2, lines 29-37 and column 10, lines 11-35).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to further combine Uchiike as modified by Ito with the teaching of

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Huang to obtain a storage device wherein high frequency noise and resonance is filtered from the voice coil motor control current and further reduce actuator vibration.

Regarding claim 6, method claim 6 is drawn to the method of using the corresponding apparatus claimed in claim 16. Therefore method claim 6 corresponds to apparatus claim 16 and is rejected for the same reasons of obviousness as described above.

9. Claims 7 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchiike et al U.S. Patent No. 6,236,527 in view of Phan et al U.S. Patent No. 5,760,992.

Regarding claim 18, Uchiike et al disclose a storage apparatus with all the limitations of claim 11 as described above. Uchiike et al however fail to mention the controller controlling the driving current to change gradually during a silent mode.

However, Phan et al disclose a disk drive wherein the controller increases and decreases the current supplied for driving the actuator for the purpose of suppressing vibration, which causes mechanical noise within the disk drive (see Fig. 6, column 2, lines 23-57 and column 16, line 39 through column 17, line 41).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the storage device disclosed by Uchiike et al with the teachings of Phan et al in order to obtain a storage device with a "silent mode" of operation for suppressing noise during movement of the actuator for a more accurate and reliable load/unload operation of the disk drive.

Regarding claim 7, method claim 7 is drawn to the method of using the corresponding apparatus claimed in claim 18. Therefore method claim 7 corresponds to apparatus claim 18 and is rejected for the same reasons of obviousness as described above.



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10. Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchiike et al U.S. Patent No. 6,236,527 in view of Koizumi et al U.S. Patent No. 5,982,570.

Regarding claim 19, Uchiike et al disclose a storage apparatus with all the limitations of claim 11 as described above. Uchiike et al however fail to mention a mode judging means for judging whether a mode is a silent or normal mode and controlling the driving current to change sharply when the mode judging means judges the mode as being the normal mode.

However, Koizumi et al disclose a storage device with a plurality of operational modes which are selected by the CPU (8) and switching circuit (15) for the purpose of accommodating the storage device to various power consumption conditions of devices connected to the storage apparatus (column 5, lines 21-47).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the storage apparatus disclosed by Uchiike et al with the teachings of Koizumi et al in order to obtain a more power efficient and versatile storage device with various modes of operation which allow it to be used with different types of power supplies and external devices.

Regarding claim 8, method claim 8 is drawn to the method of using the corresponding apparatus claimed in claim 19. Therefore method claim 8 corresponds to apparatus claim 19 and is rejected for the same reasons of obviousness as described above.


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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniell L. Negrón whose telephone number is 703-305-6985. The examiner can normally be reached on Monday-Friday (8:30-6:00) Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Hudspeth can be reached on 703-308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

DLN   
November 25, 2003

  
**DAVID HUDSPETH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600**